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A BIBLIOGRAPHY OF THE EFFECTS OF TEMPERATURE ON HUMAN PERFORMANCE

John Wing
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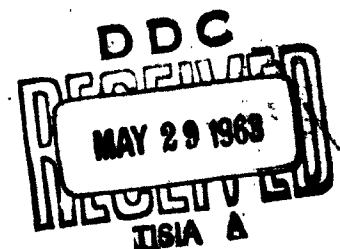
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WRIGHT-PATTERSON AIR FORCE BASE, OHIO

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FOREWORD

This bibliography was prepared in the Environmental Stress Section, Training Research Branch, Behavioral Sciences Laboratory, under Project No. 1710, "Training, Personnel, and Psychological Stress Aspects of Bioastronautics," Task No. 171002, "Performance Effects of Environmental Stress." Dr. Ross L. Morgan served as Project Scientist and Dr. W.D. Chiles as Task Scientist. The bibliography was initiated in late 1961 and completed in October 1962.

ABSTRACT

This bibliography lists technical reports and journal articles dealing with human performance under both high and low ambient temperatures. The articles and reports have been grouped into sections covering five major performance areas: (1) Sensory Thresholds and Simple Reaction Time, (2) Attention and Perception, (3) Psychomotor Performance, (4) Heavy or Prolonged Physical Work, and (5) Mental Performance. A sixth section of the bibliography lists references which review portions of the literature. All the references have been coded as to whether they deal primarily with the effects of high or low ambient temperatures. An author index is included.

PUBLICATION REVIEW

This technical documentary report has been reviewed and is approved.

Walter F. Grether

WALTER F. GRETHER
Technical Director
Behavioral Sciences Laboratory

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A BIBLIOGRAPHY OF THE EFFECTS OF TEMPERATURE ON HUMAN PERFORMANCE

INTRODUCTION

To the authors' knowledge, there exists no published bibliography of human performance under temperature extremes. The present bibliography lists unclassified studies (and reviews of studies) dealing with the effects of high and low ambient temperatures on human performance. Studies of comfort evaluation or tolerance limits are not included, nor are studies exclusively concerned with physiological as opposed to psychological functions. It does contain a few studies which are primarily physiological in nature but which also contain psychological data.

The authors have attempted to compile a comprehensive listing of all the reports and articles published on this topic in the English language. This was done by a systematic search of the literature as far back as 1952. The bibliographies attached to the reports and articles uncovered by this search were then examined for reports and articles which had been missed or which had been produced prior to 1952. Such a method of search cannot be exhaustive, and several relevant titles may have been omitted. The search was based primarily on a scanning of the Psychological Abstracts and a bibliographic search performed by ASTIA. This was supplemented by separate searches of Aerospace Medicine and Biology: an Annotated Bibliography and the following journals: Armed Forces Medical Journal, Ergonomics, Federation Proceedings, Human Factors Bulletin, Journal of Applied Psychology, Journal of Aviation Medicine, Journal of Engineering Psychology, Journal of Environmental Sciences, Journal of Experimental Psychology, and the Journal of Occupational Medicine.

The entries reported have been grouped into sections covering five broad performance areas: (1) Sensory Thresholds and Simple Reaction Time, (2) Attention (including vigilance) and Perception, (3) Psychomotor Performance, (4) Heavy or Prolonged Physical Work, and (5) Mental Performance. A sixth section lists articles and reports which present general analyses of the problem or which review some portion of the literature in this area. The authors were unable to find a really complete and detailed review of performance under temperature extremes.

Certain articles or reports were judged to contain findings pertinent to more than one performance area. These are therefore cited several times in the bibliography. Within each performance area there are studies concerned with the effects of high temperatures, low temperatures or both. To aid in locating all high temperature or all low temperature studies, an H (high) or L (low) has been placed in the right-hand margin opposite those studies dealing with just one extreme or the other. Studies which deal with the effects of both high and low ambient temperatures have no entry in the margin.

An Author Index is provided for easy access to all the different publications by a given author.

One final note should be added concerning the form used in citing each article. The form was selected with an eye to providing as much information as possible about the origin of the report. However, in order to conserve space, certain abbreviations have been employed. A list of these abbreviations precedes the bibliography. To aid in obtaining copies of reports, ASTIA documentary numbers (AD or ATT) have been added at the end of each citation, whenever these numbers were known.

LIST OF ABBREVIATIONS USED IN THE BIBLIOGRAPHY

AAL	Arctic Aeromedical Laboratory
AF	Air Force
AMC	Air Material Command
AMRDC	Army Medical Research and Development Command
AMRL	Army Medical Research Laboratories
ASHVE	American Society of Heating and Ventilating Engineers
APU	Applied Psychology (Research) Unit
BAFB	Brooks Air Force Base
CAV	Committee on Armored Vehicles
CCI	Committee on Clinical Investigation
CRU	Climate Research Unit
DA	Department of the Army
DRNL	Defense Research Northern Laboratory
FPRC	Flying Personnel Research Committee
GSA	Ground Signal Agency
HEL	Human Engineering Laboratory
IAM	Institute of Aviation Medicine
LAFB	Ladd Air Force Base
MPRC	Military Personnel Research Committee
NCB	National Coal Board
NMRI	Naval Medical Research Institute
NRCC	National Research Council of Canada
ONR	Office of Naval Research
PRB	Personnel Research Branch
PTB	Personnel and Training Branch
QRDC	Quartermaster Research and Development Center
RAF	Royal Air Force
RAFB	Randolph Air Force Base
RDD	Research and Development Division
RNP	Royal Naval Personnel
SAM	School of Aviation Medicine
SC	Signal Corps
SDC	Special Devices Center
SCSCF	San Diego State College Foundation
WADC	Wright Air Development Center
WADD	Wright Air Development Division
WPAFB	Wright-Patterson Air Force Base

SECTION I

SENSORY THRESHOLDS AND SIMPLE REACTION TIME

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<p>Aerospace Medical Division, 6570th Aerospace Medical Research Laboratories, Wright-Patterson AFB, Ohio. Rpt No. AMRL-TDR-63-13. A BIBLIOGRAPHY OF THE EFFECTS OF TEMPERATURE ON HUMAN PERFORMANCE. Final report, iv + 19 pp, 162 refs. Unclassified report</p> <p>This bibliography lists technical reports and journal articles dealing with human perform- ance under both high and low ambient temper- atures. The articles and reports have been grouped into sections covering five major per- formance areas: (1) Sensory Thresholds and</p> <p>(over)</p>	<p>UNCLASSIFIED</p> <ol style="list-style-type: none"> 1. Bibliography 2. Performance Eval- uation 3. Applied Psychology 4. Temperatures 5. Sensory Perception 6. Reaction Time (Psychology) 7. Attention 8. Perception (Auditory and Visual) 9. Psychomotor Tests I. AFSC Project 1710, Task 171002 <p>UNCLASSIFIED</p>	<p>Aerospace Medical Division, 6570th Aerospace Medical Research Laboratories, Wright-Patterson AFB, Ohio. Rpt No. AMRL-TDR-63-13. A BIBLIOGRAPHY OF THE EFFECTS OF TEMPERATURE ON HUMAN PERFORMANCE. Final report, iv + 19 pp, 162 refs. Unclassified report</p> <p>This bibliography lists technical reports and journal articles dealing with human perform- ance under both high and low ambient temper- atures. The articles and reports have been grouped into sections covering five major per- formance areas: (1) Sensory Thresholds and</p> <p>(over)</p>	<p>UNCLASSIFIED</p> <ol style="list-style-type: none"> 1. Bibliography 2. Performance Eval- uation 3. Applied Psychology 4. Temperatures 5. Sensory Perception 6. Reaction Time (Psychology) 7. Attention 8. Perception (Auditory and Visual) 9. Psychomotor Tests I. AFSC Project 1710, Task 171002 <p>UNCLASSIFIED</p>
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